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ensure male offspring. To allow the spermatie fluid to flow to the left side means female offspring.

Besides the main thesis, Mrs. Calhoun takes up the general subject of heredity, with quotations from leading authorities, matters likely to be interesting and helpful to those for whom the book is written, much of this being addressed especially to women. A new theory, called telegyny, is suggested, the effect of the first female on the male, a theory which is probably as well founded as its prototype, telegony, the supposed effect of the first male on the female, a scantily supported hypothesis, thus far lacking adequate verification.

Mrs. Calhoun writes in a frank, modest, friendly style, which disarms technical criticism. The present writer is not convinced that the theory in question is correct. But to say this is only to say that one of the central problems in biology still awaits a final decision.

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QUOTATIONS

THE ANTIVIVISECTIONISTS

BECAUSE a woman, crazy about cats, subsidized a lawyer and a press-agent for an indefinite length of time, the state of New York must face every year some bill aimed at scientific research. There are various organizations of this type, varying in the amount of absurdity and of harm. The Society for the Prevention of Cruelty to Animals has possibly put an end to its usefulness by swinging over to the antiexperiment camp. The act which has been introduced this year shows that the American societies, defeated again and again, have taken a lesson from England and are now asking for investigation instead of restriction. Pasteur and Koch could not have done their work as the British law stands to-day. Of course, investigation is a plausible term. As a matter of fact, what the opponents of scientific progress object to is experiments which are fully set forth in scientific publications. Investigation would be a mere form of sentimental agitation. The

scientists make no concealment of what they are doing. On the contrary, they give it all the publicity they can obtain. We can hardly believe that the present is a favorable moment for these dangerous sentimentalists to succeed. The death-rate from meningitis only two or three years ago was from seventy to eighty per cent. Now the rate, counting all cases, is twenty-five per cent., and in the cases where the serum is given early it runs as low as six to eight per cent. Among those cases which were called cured before the serum was discovered were the long-drawn-out and most painful ones which left imbecility or some frightful deformity. These cases now have absolutely disappeared. As this triumph over one of the most terrible and agonizing diseases, from which the principal sufferers are children, is so fresh in the mind of the public, it hardly seems possible that a backward step should be taken. Dr. Flexner and the Rockefeller Institute, in conquering meningitis, used twenty-five monkeys and about two hundred guinea-pigs and rabbits.

There is one dreadful and destructive disease which men hesitate to name. It struck down not only the guilty, but millions of innocent women and millions of innocent children. That disease has within a few months been mastered by a drug, the most perfect drug antidote in the world. The cost of conquering this disease was a few rabbits and a few mice.

Dr. Carrel, only a short time ago, perfected the delicate operation of transfusion of blood, which is now saving many lives. The cost here was a few kittens; the societies would much rather have had the kittens put into a bag and thrown into the river.

Infantile paralysis filled this country with terror a few months ago. The experiments which have taken place since then mean that this disease will be handled much better next summer, and there is every promise that before long it will be exterminated. Doubtless in the process a few animals will meet their death in the service of science, instead of in the ordinary form. There are a number of mice now suffering from cancer in order that

one of the most deadly and most painful of diseases may be conquered. The Society for the Prevention of Cruelty to Animals ought to bend all of its energies to stopping the men of science from making any use of these mice. If they do not successfully interfere, it is likely that cancer may be conquered as thoroughly as diphtheria, which has been reduced from one of the most destructive scourges of children to a point where, if the antitoxin is taken in the first twenty-four hours, the death-rate is only about one and a half per cent.

A fight is going on against the gipsy moth, the hookworm, and other well-meaning inhabitants of the globe. We suggest that bills be introduced by humanitarians into all the legislatures to protect these guiltless creatures. Rats are unpopular just now because of the fact that they carry the bubonic plague and other diseases. There ought to be organized at once a society for the protection of rodents.

The more reasonable these bills may be made to sound, the more chance there is that they may accomplish some unspeakably fatal blow against the human race. There are laws now in plenty forbidding cruelty. The great institutions which are specially aimed at by the cranks, like the Rockefeller Institute, are in the hands of men who are spending their lives in the cause of solid and real kindness. Shall we take away from splendidly equipped experts of devoted character the right to judge what experiments are necessary, and put the question into the hands of some fool committee made up of persons in whom hysterical excitement takes the place of knowledge?—*Collier's*.

SCIENTIFIC BOOKS

ELEMENTARY BIOLOGIES

BIOLOGY is unique among her sister sciences in the wealth of variation in the methods of presenting the subject to beginners. It has been truly said that there are as many methods in this work as there are men conducting it. In the minds of many, this is as it should be, for there are requirements for one which

are not for another. The technical school emphasizes certain things which will not form a part of the course given in the classical college. The material or *content* varies.

It is a question in the writer's mind as to how much the *method* of presentation should vary in the several conditions. The following well-marked methods of teaching beginning biology are recognizable: (1) Biology as an integer, not resolved into its components, zoology and botany. As subdivisions of this category, one finds: (a) The type method, introduced into this country when Martin, in 1868, adapted Huxley's "Biology" to the students entering American colleges at that time. The evolutionary chain was emphasized and morphology was predominant. (b) The two-type method, which Sedgwick and Wilson used in their text, one animal and one plant being selected and studied exhaustively, others being presented as comparisons. The functions of living matter were considered equally with the morphological features. (c) A method, not especially new but well marked in the "General Biology" of Needham,¹ where the *principles* are emphasized, illustrations being selected towards that end and morphology reduced to a minimum; types as such are scarcely recognizable. With the second great division (2), the science is resolved into its components, zoology and botany, but we may distinguish here, as before, well-marked subdivisions, (a) where the biological aspect is maintained and (b) where the work is presented as purely botany and purely zoology, with no reference to the common ground between them.

There have been published recently, in this country and abroad, several books whose purpose is to fill one of the fields given above. Kirkaldy and Drummond² have followed 1a in giving a discussion of isolated types, with little intercommunicating cement. If biology is a science, as chemistry is a science and physics is a science, having definite content and definite principles, one would never de-

¹ Comstock Publishing Co., Ithaca, 1910.

² "An Introduction to the Study of Biology," Oxford, 1909.